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Monthly News Letter



Bureau of Agricultural Engineering

U. S. DEPARTMENT OF AGRICULTURE



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: ONE AT A TIME
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: . The attention of all employees handling
: correspondence is invited to that part of the
: Bureau's instructions which requires that only
: one subject be treated in a single letter and
: that the subject matter be definitely indicated.
: This is particularly important where personnel
: matters are involved. Your cooperation will
: greatly facilitate the handling and filing of
: correspondence.

Geo. P. Kelly
Administrative Officer

Many photographs illustrating cotton ginning processes were taken during the October trip through the Texas Panhandle by C.A. Bennett, F. L. Gerdes, and G. H. Billett, photographer. In November Mr. Billett made a similar trip in Louisiana, accompanied by T. L. Baggette and F. L. Gerdes. On November 16 Mr. Bennett left Stoneville for Washington and New York.

About 1,000,000 bales of damp seed cotton was dried this season in 500 driers, largely as a result of interest stimulated by the activities of the cooperative cotton ginning laboratory.

Apparatus for studying waste heat of cotton gin engines is being installed at the cotton ginning laboratory, Stoneville, Miss. to determine the possibilities of using such waste heat in drying cotton.

W. R. Humphries is at Stoneville making observations of different kinds of mechanical cotton harvesters.

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Work of the Missouri CCC drainage camps was inspected early in November by Prof. J. C. Wooley, of the University of Missouri, Marion Clark of the Missouri Extension Service and J. G. Sutton and C.E. Jacoby of this Bureau. County agents and drainage district commissioners also took part in the inspection.

Several camps have constructed ditch inlets in accordance with designs prepared by Professor Wooley. These consist of thin, reinforced concrete slabs 3 to 6 inches thick laid without forms on sloping ditch banks formed in the shape of a weir. Some of these structures have been in use more than a year and are in fairly good condition. They need to be carefully made and installed to prevent cracks and escape of water beneath the structure.

In Marion County, Mo. there is an interesting demonstration of mole drainage. The drains were put in with a mole plow, costing \$160, drawn by a 30 horse-power tractor. The drains are 60 feet apart and 20 inches below the surface. The owner says 40 acres can be gone over in a day with this outfit at a cost of 25 cents an acre. He considers this type of drainage satisfactory and, in gumbo soil, better than tile, since such soil has a tendency to seal tile and prevent the entrance of water.

The strawberry irrigation experiment at Willard, N.C., under the supervision of F. E. Staebner, has been discontinued for the winter season.

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R. B. Gray returned October 27 from an extended field trip to all of the projects of the Division of Mechanical Equipment. While in California he attended the meeting on October 16 of the Pacific Coast section of the A.S.A.E. at Asilomar, where plans are under way for the "best ever" annual meeting of the Society next June. At Laurel, Miss. he inspected the work in sweet potato harvesting. W. M. Hurst is doing this work with the assistance of George Stafford. Mr. Gray then proceeded to Stoneville, Miss., and with W. R. Humphries inspected the Berry and International Harvester Co. cotton pickers. Because of bad field conditions these machines were not in operation. The International combination cleaner and drier was inspected at Clarksdale, Miss. The last stop was at Auburn, Ala. where he discussed plans with J.W. Randolph, E.D. Gordon, and I. F. Reed. At the soil tillage laboratory emphasis at present is to be placed on investigations of the moldboard plow and disk in the various soil types.

G. A. Cumings inspected the cauliflower fertilizer-placement experiment at Mattituck, Long Island, on November 11. Cool weather has delayed the crop, and if freezing temperatures come at the usual time a large percentage of the crop will not be harvested. There was marked evidence of nitrogen deficiency and inferior growth where less than 2000 pounds of fertilizer an acre was applied. Row applications as compared to broadcasting the fertilizer showed no apparent differences. Such differences must be finally determined by consideration of several factors such as, size of plant, earliness of maturity, and the number, size, and quality of the marketable heads.

A special fertilizer-grain drill which will be used in fertilizer placement experiments with peas, soybeans and possibly with small grains

has been practically completed by L. G. Schoenleber, assisted by D. B. Eldredge. The special features include two adjustable sets of furrow openers independently operated, one used for seed and the other for fertilizer, gage wheels on the seed shoes, reversed hopper to place the fertilizer compartment in front, and refined adjustments for the fertilizer and seed dispensing mechanisms.

S. W. McBirney reports that field tests of the Scott Viner Co. sugar beet harvester have been completed for this year. Where conditions were favorable, the machine harvested from 95 to 98 percent of the beets topping nearly all of those harvested equally as well as it could be done with hand labor.

Messrs. Boyd, Holman, and Glaves visited the Toledo office on November 11. Mr. Boyd discussed the pest control projects with the men at Toledo.

Several sets of the self-aligning disk jointers have been placed in the hands of cooperating farmers for tests in plowing under cornstalks and heavy accumulations of sweet clover and soybean trash left by combines.

W. M. Hurst and George Stafford report that a white potato digger with certain alterations appears suitable for harvesting sweet potatoes for starch manufacturing purposes at Laurel, Miss. However, the successful operation of such equipment requires that most of the potato vines on the ridges be removed and that the rows be "barred off". Attachments for performing these operations are being developed.

Yield of seed cotton in 1937 on the various tillage plots at Prattville, Ala., varied from 892 pounds to 1703 pounds per acre. These differences in yield further substantiate the fact that soil structure can be altered by tillage methods and have a direct effect on yield.

J. W. Randolph has prepared a paper on Tillage Methods in Relation to Cotton Production to be read at the meeting of the Farm Equipment Institute at Chicago early in December. Mr. Randolph and I. F. Reed have prepared another paper entitled Effects of Several Factors on the Reactions of 14-inch Moldboard Plows" which will be given at the fall meeting of the A.S.A.E. in Chicago, December 1.

A disk harrow made up of two opposed disk gangs has been altered to permit mounting in the dynamometer unit at the tillage laboratory. The disk harrow when attached to the drawbar of the dynamometer is free to float in a vertical direction. The depth of penetration due to various loadings, angled settings, disk spacings, and disk diameters run at various speeds on the soil plots is recorded on a specially built depth-recording device. The draft required to pull the disk forward is measured and observations are being made on the degree of pulverization effected.

In preparation for making winter snow cover observations, J. C. Marr, R. A. Work, R. L. Parshall, Carl Rohwer, L. T. Jessup, R. B. Allyn, and George D. Clyde, inspected old snow courses and established new ones; interviewed officials of the Geological Survey, Forest Service, Weather Bureau, and many others interested, with regard to cooperation in this project; and supervised the construction and provisioning of shelter cabins. In the Medford (Oregon) area arrangements were made for radio transmission of reports from isolated regions. Two new courses, located by Carl Rohwer in the northwestern part of Colorado, in addition to others in the headwaters of the Colorado River, are expected to be useful to the Bureau of Reclamation in the operation of the Boulder Canyon and Colorado-Big Thompson projects.

Field work on the supplemental irrigation project in South Dakota has been completed by Dean C. Muckel. Several irrigation projects for which Government loans had been requested were inspected by Mr. Muckel and for such of these as appeared feasible he prepared tentative plans.

R. L. Parshall reports that a special vortex tube sand trap, with parabolic axis, cast of concrete, was installed in a channel 8 feet wide, at the Bellvue, Colo., laboratory. Tests indicate that it is capable of trapping out from 85 to 90 percent of a measured sample placed in the channel upstream from the tube. Under favorable conditions of flow, cobblestones weighing about 10 pounds have been moved the entire length of the tube, apparently with little difficulty. However, this type of vortex tube apparently has no marked advantage over the previously tested straight tube of taper design, and is more difficult to construct. Further study of the device may reveal additional information as to its real merits.

In connection with work under the Flood Control Act of June 22, 1936, a conference was held at Berkeley of representatives of the Bureau and the Forest Service, at which our Bureau was requested to prepare preliminary reports on rainfall, snowfall, and ground water. Harry F. Blaney will conduct field investigations with the assistance of A. A. Young, while P. A. Ewing will prepare a report on snow survey work and W. A. Hutchins on water rights.

A. T. Mitchelson, substituting for Mr. McLaughlin as a member of Flood Control Committees 18 and 20, attended meetings at Berkeley and Ventura, to plan the work of the committee in the various watersheds of California.

Messrs. Blaney and Young attended an all-day hearing of representatives of the War Department and the Department of Agriculture, at Ventura, Calif. on flood control in the Ventura watershed. Mr. Young will start field work immediately in Kings River and Merced areas and then proceed to San Francisco to spend several days in the office of the Forest Service in reviewing ground-water reports and San Joaquin Valley

precipitation data. (That office is the headquarters of the Executive Secretary of the Flood Control Committee, who has on file much of the data on the various phases of the Preliminary Report assigned to the Bureau of Agricultural Engineering).

H. F. Blaney attended an all-day session at Phoenix, Ariz., of the Agricultural Committee for revision of the National Resources Committee report on the Lower Colorado. Seventeen projects were prepared for submitting to that Committee. Mr. Blaney also attended two sessions of the National Resources Committee hearing at which the Federal and State committees presented their projects for water conservation on the Lower Colorado Basin, five projects being submitted for our Bureau - most of them joint projects with other offices.

A. T. Mitchelson completed outlines and estimates for research projects to be submitted for consideration of the National Resources Committee as future studies of the Bureau. He attended 3 informal meetings of the two committees for the Central Valley, Central Coastal, and Southern Coastal Basins of California. On Oct. 21 a meeting of all the committees of the Federal Departments, the State Planning Board and the several State, County, and Municipal representatives was called at Sacramento by the Regional Director and the Regional Water Consultant, at which meeting Mr. Mitchelson substituted for Mr. McLaughlin as Department of Agriculture chairman. He also served in the same capacity at a similar meeting at Reno, Nev., of the Western Great Basin Area.

R. L. Parshall attended the meeting of the Upper Colorado River Basin Committee at the State Capitol at Denver Oct. 8-9, at which a large number of new projects were introduced, relating mostly to supplemental irrigation supplies in Colorado, Wyoming, Utah and New Mexico. The subject of flood control with special reference to silt and soil erosion was also touched upon. On Oct. 25 Mr. Parshall attended the meeting of the Platte Drainage Basin Committee at North Platte, Nebr., and introduced two new projects, one dealing with underground water resources and the other with the study of developing a suitable device for measuring flood flows that are heavily laden with debris.

L. T. Jessup attended the Water Resources and Hydrological Committee meetings at Spokane Oct. 17, at which programs covering the entire Columbia River Basin were formulated for presentation to the National Water Resources Board.

R. A. Work attended the meeting of the Northern California-Klamath Basin Committee of the National Resources Committee at Klamath Falls.

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A. D. Edgar is making tests on several potato storage houses, located at various points in Michigan with headquarters at Cadillac. The tests are being conducted in cooperation with Michigan State College. A progress report on the experimental farmhouses is being prepared by J. W. Simons which will be given at the A.S.A.E. meeting in Chicago November 30.

An instrument for electrical measuring of the moisture content of corn and small grains is being used experimentally in the corn storage studies in Illinois and Iowa. Preliminary studies and calibration of the apparatus were made in Washington.

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Publications Issued:

Artificial Drying of Forage Crops. Circular 443.

Plans of Farm Buildings for Northeastern States.

Miscellaneous Publication No. 278

Flow of Water Around 6-inch Pipe Bends.

Technical Bulletin No. 577.

Rate of Flow of Capillary Moisture. Technical Bulletin No. 579.

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